

# CAPILLARY RUPTURE WITH INTIMAL HEMORRHAGE IN THE CAUSATION OF CEREBRAL VASCULAR LESIONS

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Capillary rupture with intimal hemorrhage in relation to the precipitation of coronary thrombi has been described in detail elsewhere;<sup>1</sup> the observations reported there, and in part the conclusions, have been confirmed and elaborated on by Wartman,<sup>2</sup> by Winternitz and his co-workers<sup>3</sup> and by others. It has been shown that intimal hemorrhages result from the rupture of capillaries derived from the arterial lumens, not from the backflow of blood through intimal defects as was previously thought. Because intimal hemorrhages are a common finding at the sites of precipitation of coronary thrombi, it appears fairly certain that the two lesions are cause and effect. Recently I have suggested that pulmonary thrombi may sometimes be precipitated by similar intimal hemorrhages.<sup>4</sup>

The purpose of the present paper is to describe intimal hemorrhages due to capillary ruptures in sclerotic cerebral arteries and to discuss the relation of these hemorrhages to certain cerebral vascular lesions, namely, arteriospasm, thrombosis and cerebral hemorrhage.

## MATERIAL AND METHOD

Most of the material for this study was obtained at autopsies on 6 patients who had shown clinical signs of cerebral thrombosis. When the thrombus was identified on gross examination, the affected segment of the artery was embedded in one or more blocks and sectioned serially at intervals of about 100 microns. When the thrombus was not evident on gross examination, the entire involved artery was cut into short segments, and these were embedded in bundles and sectioned serially at intervals of about 100 microns. When lesions of interest were noted on microscopic examination, the intervening sections were mounted and stained. In case 1 all of the cerebral arteries and their main branches were studied by serial section, the "bundle" method being used. Most of the sections were stained with hematoxylin and eosin, but occasionally Perle's stain and Masson's trichrome light green stain were used.

From the Department of Pathology of the Ottawa Civic Hospital.

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3. Winternitz, M. C.; Thomas, R. M., and LeCompte, P. M.: *The Biology of Arteriosclerosis*, Springfield, Ill., Charles C. Thomas, Publisher, 1938.

4. Paterson, J. C.: *Am. Heart J.* **18**:451, 1939.